peated. For all the painful conditions of the cornea where an analgesic is indicated, two or three drops of dionin, used in one of the above strengths, depending on the severity of the pain, will produce analgesia and complete relief from pain for from 24 to 72 hours.

Dr. Deane: Dr. Payne's experience with dionin has been most interesting, and though my experience with the drug has been more limited, I cannot but speak of this new and altogether unique derivative of morphin. It is essentially an eye drug, for its use in other parts of the body has not been followed by the same results. This is apparent for several reasons: First, because its action upon the lymphatic circulation is so marked. (The eye is the most perfect example of lymph circulation in the body, especially the cornea, on which dionin has such a marked effect.) Its antiseptic power can only be demonstrated here as this action is produced only secondary through the stimulation of the flow of tears and of the lymphatic circulation within the tissues.

Dr. Brady: "Acute Glaucoma an Initial Symptom in Typhoid." The case that I wish to present is that of a woman normally delivered of twins. She passed through an uneventful puerperum of twenty-one days; although still weak, attended to her household cares for the ensuing two weeks. On Sunday she partook of a full evening meal. About five hours later her medical attendant was summoned and found her in the following condition: Temperature, 102.5° F.; greatly exhausted from persistent vomiting; unable to raise right arm; both wrists swollen and showing purpuric nodules. The left eyelids were markedly swollen, almost to closure, with strongly bulging chemotic conjunctiva. He gave her repeated hot applications to the eye, but the pain not subsiding after twenty-four eyes, called me in. The temporal pain was then intense; lids markedly inflamed and edematous, the gelatinous and strongly hyperemic conjunctiva bulging 2mm. foreward and overlapping limbus 1mm.; marked ciliary pain; iris dirty green color; pupil medium dilation; immobile; A. C. deepened; T=+2; light projection poor; light perception limited to shadow outlines. Marked yellowish green vitreous halo, no fundus detail; installation of eserine resulted in reduction of tension to +0.5 and great relief of pain. (Hot compresses continued.) Typical typhoid curve lead to widal test which was positive on tenth day.

Positive diazo: b, typhi obtained in pure culture from cephalic vein; marked anemia, red to 1,250,000, hemoglobin 35-40 per cent; bacteriological examination of genital tract and urine negative; asthenic symptoms and fever increased, exitus lethalis on fifteenth day. No autopsy allowed.

BONE TRANSPLANTING, AND REPORT OF A CASE.*

By A. W. MORTON, A. B., M. D., San Francisco.

Professor of Surgery, College of Physicians and Surgeons, and Surgeon to Santa Fe Railroad.

THE defects in bone structures heal so slowly that it is no wonder we are advised to sacrifice many extremities, which might be saved if we better understood the methods of repair.

Many surgeons, in their efforts to restore bone, have attempted to use non-absorbable material, such as silver plates, copper amalgam, plaster of paris, platinum, irridium, gutta percha, celluloid and many other substances, some of which have been very useful.

Our knowledge of this subject is limited, and most of the work done has been very unsatisfactory, which we would naturally expect when we consider that the bone proper has very little tendency to repair, and that it is principally from the osteoblast of the periosteum of the myeloplast, and of the medullary tissue.

In all the methods in use, it is necessary to have not only an aseptic cavity, but a very limited one, and a bountiful supply of periosteum.

There are indications when transplanting of bone is especially indicated.

First—Cosmetic effects in repairing the deformities about the nose. This method of transplanting a flap, including the skin, superficial structures, periosteum, occasionally the upper layer of bone, with a pedicle attached, is often made use of to repair the defects about the nose, face, and trachea, or to close spaces about the vault.

Second—To fill in the cavity of bones to hasten recovery. Small fragments of fresh bone from a person, or lower animal, or occasionally the decalcified bone chips of Senn, are used to close a sterile bone cavity. These reports should be considered of questionable value, when we consider that one of the requirements is to cover the fragments with periosteum, which has the power to reproduce bone; again, years have elapsed and the bone chips are found in the cavity without undergoing a change, simply remaining as a foreign body.

Third—The most important indication to be met is to restore the continuity of the long bones to support and protect the trunk. Where extensive defects in a long bone exist as a result of the destruction of periosteum and medullary structures by some mechanical injury, or disease, the only methods by which it can be repaired is to transplant a large piece of bone with vascular attachments from some point, near the defect, so that its pedicle will have plenty of blood supply; the deformity will seldom be in position to make use of any of the adjoining bone structures without interfering very materially with the function of the part.

CASE REPORTED.

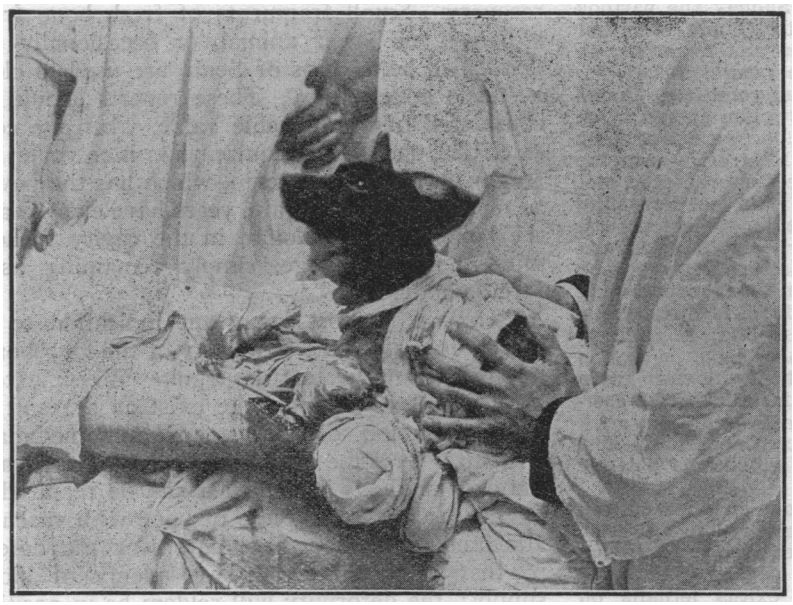
The case reported here shows the advantage of transplanting bone from lower animals to repair bone defects in man. This is unquestionably the first successful case of bone transplanting by vascular attachment from animal to man.

August Brandstedt, age 45, Swedish descent, free from any hereditary tendencies to disease; weight 245; health has always been good; uses liquors and tobacco in moderation; occupation is that of a painter. September 8th, 1900, patient fell about twelve feet, striking on the sidewalk, producing a compound comminuted fracture of the tibia and fibula of the right leg, near the

*Read at the Thirty-second Annual Meeting of the State Society, San Francisco, April 14-17, 1903.

lower end. He was admitted to the City and County Hospital on the same date; the fracture was set, drained and placed in a fracture box; the leg became enormously swollen, and sepsis soon developed. The patient came under my charge on October 5th, about one month after the injury; he had the appearance at that time of a person suffering from sepsis; his injured leg, including the knee joint, was swollen; temperature ranged from 100° to 103°; pulse rate from 100 to 110. A few days later an incision was made over the tibia, free drainage established, and necrotic pieces of bone removed. The parts were placed in a plaster cast (with window), and afterwards removed and kept in fracture box. His general condition improved, but there did not appear to be any repair at the seat of fracture.

On November 14th the patient was placed under the influence of medullary narcoses, and the parts opened, when I found the lower end of



JUST BEFORE INCASING IN PLASTER.

the tibia denuded of periosteum and the end necrotic. The lower five inches of this bone was removed with a chain saw. The fibula had united; the wound was swabbed with tincture of iodin and drained. The patient was returned to the ward, the leg placed in fracture box, with little doubt but that it would be necessary to amputate.

In a few days the parts improved, and on the 28th day of the same month the patient was again placed under medullary narcoses, the periosteum reseceted back, and the end of the bone freshened, so there was free hemorrhage; then a black-and-tan dog, of medium size, which had been prepared by trimming the hair, bathing and shaving the forelegs, was placed under ether, and the left foreleg thoroughly cleansed and amputated just above the torsus; the ulna was left one inch longer than the radius; the skin and muscles were divided by a longitudinal incision for about four inches, and left attached, except at about three inches at lowest end, which was removed to periosteum. The cut end of the ulna entered the cavity of the tibia for one inch, and was united with silver wire to same. The upper part of the incision in the leg was closed by stitches. This placed the dog's leg on nearly the same plane as the man's leg. The wounds were drained, as they were not aseptic; all the stronger tendons in each leg of the dog were severed by a subcutaneous incision; the wounds were dressed with gauze, and the other three legs of the dog were incased in plaster of paris separately; the dog and the leg of the man were incased in a plaster cast, extending to the knee of the patient. A space was left beneath the dog to prevent soiling from the urine or feces; a window was left at the wound, so that dressings could be changed. The plaster cast was made heavy and strong by imbedding splints in the cast. The patient was returned to the ward. The man suffered very little pain, or inconvenience, except for two or three days, as the dog was restless, and would attempt to move, and the more the dog would move, the more pain was not only inflicted on the patient but on himself. He soon realized this, so that it was not necessary to give any morphine to the dog after the fourth day. The dog and man became very much "attached" to each other.

The patient's general condition gradually improved, and his temperature and pulse remained about normal after the third day.

To keep the dog tightly incased in the cast, it was necessary to pack cotton and gauze around him, as he lost considerable flesh.

Five weeks later the man was again placed under medullary narcoses, and the dog under ether; the cast was removed, the skin and muscles were separated from the dog's leg, and the two bones divided near the joint, and were placed in contact with the astragalus; the skin and deeper structures were united, except at point of drainage, which slowly closed by granulation, except at the lower angle a fistula remained, through which a small fragment of one of the bones passed, which was broken at the time the dog was detached; this occurred four months later.

The skiagraphs taken three months after the operation show the callus around the bones, the dog's bone remaining in the center. A recent one shows where the lower end of the tabia has

formed bone corresponding in size to the tabia.

The patient walks about with his cane, but can get around without it, and has a very useful leg.

This case demonstrates that the defects of bone in man can be successfully transplanted from the lower animal by means of vascular attachment.

Secretaries of other County Societies are requested to read the report of Humboldt County Society published in this issue. If similar reports would be furnished by all the county societies, that department of the JOURNAL could be made quite as interesting and valuable as the very much alive Humboldt society makes it.

Overstudy and the Nervous Child—We do not much believe in the intellect, the morals or the pedagogics of the colt-breakers or the boy-breakers. There are better ways to break a horse or a child than to break its will, and the teacher that entertains such diabolic theories should be "broken." The noteworthy fact about the whole discussion is the utter omission from a hundred papers and discussions of the most important element of the entire matter. There are, it is true, many other factors; there is really overstudy and overpressure, but the one cause of the nervous child which is ignored, but which is as prolific a source of evil as perhaps all others combined, is eye-strain.—*American Medicine.*

Antiquity of Hospitals—Many centuries before the Christian era there existed in India and Ceylon institutions which performed the functions of hospitals (*Real-Encyclopadie*, Eulenberg). They were built and maintained by the Buddhists. In the Scriptures there is a mention of what the Hebrews called Bethesda, but this was nothing more than a few rude huts in the neighborhood of a mineral spring supposed to have healing properties. According to Lecky *(History of European Morals)*, the first hospital was founded by a Roman lady named Fabiola, about the fourth century, at Rome. Soon after another hospital was founded by St. Pammachus, and another by St. Basil at Caesarea. During the crusades numerous hospitals arose in all parts of Europe. San Spiritu, built by Innocent III, was erected in 1204 at Rome. The first hospital in England was built by Lanfranc, Archbishop of Canterbury, in 1080. The first hospital of any size erected in America was the Pennsylvania Hospital in Philadelphia, begun in 1751 by Dr. Bond and Benjamin Franklin.—*Philadelphia Medical Journal.*

Surgical Hint—Primary syphilis of the fingers and hands, for obvious reasons, occurs more frequently in physicians than in any other class of people. Hence, no physician is justified in failing to disinfect his hands with the utmost care after every examination of male or female genital regions or of mucous membranes. The worst way of diagnosing syphilis is by a culture experiment on the doctor himself. —*Journal of Surgery.*

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